# FLAME-RESISTANT, HIGH-TEMPERATURE PHTHALONITRILE COMPOSITES

A major technological opportunity lies in the development of phthalonitrile-based composite systems for aerospace and marine applications. Phthalonitrile-based composites are easy to process from indefinitely stable prepreg, exhibit high thermal and oxidative stability approaching 375°C (700°F) in air, have low-equilibrium moisture pickup, and show fire tolerance that exceeds Navy specifications for composite ship applications. Additionally, the cure exotherm is easily controlled for thick composite fabrication. Phthalonitrile/CCA-3 composites lose less weight than baseline carbon cloth phenolic materials when exposed to plasma torch testing.

Potential applications of phthalonitrile resins include:

- Advanced composites
  - National Aerospace Plane (NASP)
  - Engine applications
  - Missiles and rockets
- High-temperature adhesives
- Dielectric materials for electronic applications
- Intrinsic electrically conducting polymers

Patent licenses are available to companies with commercial interests.

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